

REMARKS

Status of the Claims

Claims 1 to 39 stand rejected. Claims 1, 14, 19, 24, 30, and 35 have been amended. No claims have been added or cancelled by this amendment.

Improper Final Office Action

The Examiner has improperly made final the outstanding Office Action of June 7, 2007. Under present practice, second or any subsequent actions on the merits shall be final, except where the examiner introduces a new ground of rejection that is neither necessitated by applicant's amendment of the claims nor based on information submitted in an information disclosure statement filed during the period set forth in 37 CFR 1.97(c). MPEP 706.07(a).

In the last Amended, submitted December 27, 2006, no changes were made to claims 19-22 or 35-38. However, in response to the last Amendment, the Examiner withdrew rejections based on U.S. Patent No. 4,081,388 (Soula'388); and made new rejections to these claims based on newly cited U.S. Patent No. 4,094,802, ("Soula'802") in combination with various other references. These new rejections were not necessitated by amendment. Nor was the newly cited Soula'802 reference supplied by Applicants in an information disclosure statement during the period set forth in 37 CFR 1.97(c). Accordingly, applicant requests that the finality of the Office Action be withdrawn.

Rejections Under 35 USC § 102

Soula

Claims 1-3, 5, 9, 14, 18 and 39 are newly rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 4,094,802 ("Soula"), for the reasons set forth at pages 2 to 3 of the Final Office Action. Applicants respectfully traverse the rejection.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. MPEP § 2131. "The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

Applicants independent claims 1 and 14 recite, among other things, a reaction product of a treated amine and a compound selected from the group consisting of hydrocarbyl succinic anhydrides, Mannich adducts derived from hydrocarbyl-substituted phenols reacted with formaldehydes, ethylene-propylene copolymers grafted with ethylenically unsaturated carboxylic groups, and copolymers of unsaturated acids and polyolefins, wherein the treated amine comprises an aliphatic or aromatic amine containing at least one primary or secondary amino group reacted with acrylonitrile or at least one homologue thereof, followed by reduction to the primary amine, with the proviso that the aliphatic amine is chosen from aminoguanidine bicarbonate, diethylene triamine, triethylene tetramine, tetraethylene pentamine, pentaethylene hexamine and heavy polyamines.

Soula fails to teach every limitation of the claims, as recited above. Instead, Soula teaches that N,N,N',N'-tetrakis-(3-aminopropyl)-ethylenediamine can be prepared

by cyanoethylation of ethylenediamine with acrylonitrile. Column 2, lines 58-62.

Because Soula fails to teach every limitation of the claims, no *prima facie* case of obviousness has been made, and the rejection should be withdrawn.

Gutierrez

Claims 1, 14, 17, 19, and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,643,859 ("Gutierrez"), for the reasons set forth at pages 3 of the Final Office Action. Applicants respectfully traverse the rejection.

Applicants independent claims 1 and 14 recite, among other things, a reaction product of a treated amine and a compound selected from the group consisting of hydrocarbyl succinic anhydrides, Mannich adducts derived from hydrocarbyl-substituted phenols reacted with formaldehydes, ethylene-propylene copolymers grafted with ethylenically unsaturated carboxylic groups, and copolymers of unsaturated acids and polyolefins.

Gutierrez fails to teach every limitation of the claims. Instead, Gutierrez teaches a dispersant prepared from the reaction of Koch functionalized polymers and polyamines. Column 4, lines 11-20. The Koch functionalized polymers do not include a compound selected from the group consisting of hydrocarbyl succinic anhydrides, Mannich adducts derived from hydrocarbyl-substituted phenols reacted with formaldehydes, ethylene-propylene copolymers grafted with ethylenically unsaturated carboxylic groups, and copolymers of unsaturated acids and polyolefins, as claimed. Because Gutierrez fails to teach every limitation of the claims, no *prima facie* case of obviousness has been made, and the rejection should be withdrawn.

Rejections Under 35 U.S.C. 103

Soula in view of Papay

The Office has rejected claims 6, 11-12, 16-17 and 21-22 under 35 U.S.C. 103(a) as being unpatentable over Soula in view of U.S. Patent No. 5,652,201 ("Papay"), for the reasons provided at pages 4 to 5 of the outstanding Office Action.

For the reasons described above, Soula fails to teach all the limitations of claims 1 and 14. Claims 6, 11-12, and 16-17 depend either directly or indirectly from, and therefore include all the limitations of, claims 1 and 14.

Papay fails to remedy the teachings of Soula. Rather, Papay is directed to oleaginous compositions comprising, among other things, one or more oil-soluble boron-free additive compositions formed by heating (i) at least one boron-free oil-soluble ashless dispersant containing basic nitrogen and/or at least one hydroxyl group, with (ii) at least one inorganic phosphorus acid such that a liquid boron-free phosphorus containing composition is formed. See Abstract.

Because Soula in view of Papay fails to teach or suggest the reaction product recited by the claims, no prima face case of obviousness exists. Accordingly, applicants request that the rejection be withdrawn.

Soula in view of Chung

The Office has rejected claim 7 under 35 U.S.C. 103(a) as being unpatentable over Soula in view of U.S. Patent No. 4,735,736 ("Chung"), for the reasons provided at pages 5 to 6 of the outstanding Office Action. For the reasons described above, Soula fails to teach all the limitations of claim 1. Claim 7 depends either directly or indirectly from, and therefore include all the limitations of, claim 1.

Chung fails to remedy the deficiencies of Soula. Instead, Chung is directed to viscosity index improvers, such as ethylene copolymers grafted with unsaturated acid material followed by reaction with polyamine. See Abstract.

Because Chung fails to provide the missing teachings of Soula, no *prima facie* case of obviousness exists. For at least this reason, the rejection should be withdrawn.

Soula in view of Steckel

The Office has rejected claims 13, 19-20, 23 and 35 under 35 U.S.C. 103(a) as being unpatentable over Soula in view of U.S. Patent No. 6,299,655 ("Steckel"), for the reasons provided at pages 6 to 7 of the outstanding Office Action.

For the reasons described above, Soula fails to teach all the limitations of claims

1. Claim 13 depends either directly or indirectly from, and therefore include all the limitations of, claim 1.

Steckel fails to remedy the teachings of Soula. Rather, Steckel is directed to diesel fuel oil compositions comprising high molecular weight, high total base number nitrogen containing dispersants. See Abstract.

Because Soula in view of Steckel fails to teach or suggest the reaction product recited by the claims, no *prima facie* case of obviousness exists. Accordingly, applicants request that the rejection be withdrawn.

Regarding claims 19-20, 23 and 35, the combination of Soula and Steckel also fails to render obvious these claims. As admitted by the examiner, Soula fails to disclose a fuel composition. In order to remedy this deficiency, the Examiner has attempted to combine the teaching of Soula with those of Steckel.

However, Steckel is directed to a composition comprising a major amount of a diesel fuel oil and a minor amount of a high base containing dispersant wherein the product obtained by multiplying the percent nitrogen content by the weight average molecular weight of the dispersant ranges from about 45,000 to about 100,000. See column 2, lines 9-19. In order to meet these dispersant requirements, Steckel teaches that the dispersants should have high molecular weights and high base numbers. See column 2, lines 25-26. For example, the specific dispersants taught by Steckel, such as those shown in Table I, have relatively high molecular weights, such as 15000 or more, and/or have a relatively high percent of nitrogen of greater than 2.3%, indicating a high base number.

There is no evidence on the record that the dispersants of Soula meet the criteria set forth by Steckel of both a high molecular weight and high base number. For instance, the example dispersant compounds of Soula appear to be made with a relatively low molecular weight PIBSA derived from a polyisobutene having a molecular weight of only about 1000, and thus will not likely meet the dispersant requirements of Steckel. See Example 1, column 3, lines 44-49.

Thus, because the Soula dispersants are not taught as meeting the requirements of Steckel, one of ordinary skill in the art would not be motivated to use them in a fuel, as asserted by the Office. For at least this additional reason, there is no motivation to combine the references, and the rejections should be withdrawn.

Soula in view of either Lambert or Lambert and Papay

The Office has rejected claims 30-32 under 35 U.S.C. 103(a) as being unpatentable over Soula in view of U.S. Patent No. 5,888,947 ("Lambert"), for the

reasons provided at page 7 of the outstanding Office Action. In addition, the Office has rejected claims 33-34 under 35 U.S.C. 103(a) as being unpatentable over Soula in view of Lambert and Papay, for the reasons provided at page 8 of the outstanding Office Action.

Claim 30 has been amended to include a proviso similar to that of claim 1, reciting that the aliphatic amine is chosen from aminoguanidine bicarbonate, diethylene triamine, triethylene tetramine, tetraethylene pentamine, pentaethylene hexamine and heavy polyamines. Accordingly, claim 30 is allowable over Soula at least for the reasons discussed above. Further, neither Lambert, as applied to claims 30 to 32, nor the combination of Lambert and Papay, as applied to claims 33 and 34, remedy the deficiencies of Soula.

Instead, Lambert is directed to vegetable oil based lubricants derived primarily from plants. Lambert, column 3, lines 57-61. And, for the reasons described above, there is no motivation to combine the teachings of Papay with Soula.

Because neither Lambert nor the combination of Lambert and Papay remedy the deficiencies of Soula, no *prima facie* case of obviousness exists. For at least this reason, the rejections should be withdrawn.

Soula in view of either Lambert and Galka, or Lambert, Galka and Papay

The Office has rejected claims 10 and 24-27 under 35 U.S.C. 103(a) as being unpatentable over Soula in view of Lambert, and further in view of U.S. Patent No. 6,427,647 ("Galka"), for the reasons provided at pages 8-9 of the outstanding Office Action. The Office also has rejected claims 28-29 under 35 U.S.C. 103(a) as being unpatentable over Soula in view of Lambert, Galka and Papay, for the reasons provided

at pages 9-10 of the outstanding Office Action. Applicant respectfully traverses these rejections.

Claim 10 is dependent on claim 1, and therefore includes all the limitations of claim 1. Claim 24 has been amended to include the proviso of claim 1, reciting that the aliphatic amine is chosen from aminoguanidine bicarbonate, diethylene triamine, triethylene tetramine, tetraethylene pentamine, pentaethylene hexamine and heavy polyamines. Claims 25 to 29 depend from claim 24. Accordingly, for similar reasons as described above for claim 1, Soula fails to teach all of the limitations of claims 10 and 24 to 29.

Galka does not remedy the deficiencies of Soula. Instead, Galka is directed to a fuel injection system for a large two-stroke engine. See column 1, lines 66-67. For the reasons described above, neither Lambert or Papay remedy the deficiencies of Soula.

Thus, neither Soula in view of Lambert and Galka, as applied to claims 10 and 24-27, nor the Soula/Lambert/Galka and Papay combination, as applied to claims 28 and 29, provide a *prima facie* case of obviousness. Accordingly, Applicant respectfully requests that the rejections be withdrawn.

Soula in view of Steckel and Papay

The Office has rejected claims 36-38 under 35 U.S.C. 103(a) as being unpatentable over Soula in view of Steckel, and further in view of Papay, for the reasons provided at page 10 of the outstanding Office Action.

Claims 36 to 38 depend, either directly or indirectly, from claim 35. For the reasons set forth above, there is not motivation to combine the teachings of Steckel with Soula, and thus no *prima facie* case of obviousness exists for claim 35.

Papay fails to remedy the defects of the Soula/Steckel combination by providing motivation for using the dispersants of Soula in a fuel. Instead, Papay is generally directed to lubricant compositions. See e.g., Papay, Title, and column 4, lines 53-55. Because Papay fails to remedy the Soula/Steckel combination, no *prima facie* case of obviousness exists, and the rejection should be withdrawn.

Emert in view of Soula

The Office has rejected claims 1-3, 8-9, 14-15, 17-18 and 39 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,872,084 ("Emert") in view of Soula, for the reasons provided at pages 10-12 of the outstanding Office Action.

Applicants independent claims 1 and 14 recite, among other things, a reaction product of a treated amine and a compound selected from the group consisting of hydrocarbyl succinic anhydrides, Mannich adducts derived from hydrocarbyl-substituted phenols reacted with formaldehydes, ethylene-propylene copolymers grafted with ethylenically unsaturated carboxylic groups, and copolymers of unsaturated acids and polyolefins, wherein the treated amine comprises an aliphatic or aromatic amine containing at least one primary or secondary amino group reacted with acrylonitrile or at least one homologue thereof, followed by reduction to the primary amine, with the proviso that the aliphatic amine is chosen from aminoguanidine bicarbonate, diethylene triamine, triethylene tetramine, tetraethylene pentamine, pentaethylene hexamine and heavy polyamines.

Emert does not teach or suggest the recited reaction product. Instead, Emert teaches a preferred Koch functionalized product, which is the reaction product of at least one hydrocarbon with a carbon monoxide and a nucleophilic trapping agent, that is

derivatized with a heavy amine and second amine. See Abstract. The Koch functionalized product of Emert does not include a compound selected from the group consisting of hydrocarbyl succinic anhydrides, Mannich adducts derived from hydrocarbyl-substituted phenols reacted with formaldehydes, ethylene-propylene copolymers grafted with ethylenically unsaturated carboxylic groups, and copolymers of unsaturated acids and polyolefins. Thus every element of the claims is not taught or suggested.

Soula, as relied upon by the Office, fails to remedy the deficiencies of Emert. The Examiner has relied upon Soula for the teaching of cyanoethylation of a primary amine. See Office Action, page 11. However, Soula's teaching of cyanoethylation fails to provide the necessary teaching and motivation to arrive at the claimed reaction product from the teachings of Emert. Accordingly, no *prima facie* case of obviousness exists, and the rejection should be withdrawn.

CONCLUSION

Applicant respectfully requests that this Amendment under 37 C.F.R. § 1.116 be entered by the Examiner, placing claims 1 to 39 in condition for allowance. Applicant respectfully points out that the final action by the Examiner presented new art and arguments against Applicant's invention. It is respectfully submitted that the entering of the Amendment would allow the Applicant to reply to the final rejections and place the application in condition for allowance.

Further, Applicant submits that the entry of the amendment would place the application in better form for appeal, should the Examiner dispute the patentability of the pending claims.

In view of the foregoing remarks, Applicant submits that this claimed invention, as amended, is neither anticipated nor rendered obvious in view of the prior art references cited against this application. Applicant therefore requests the entry of this Amendment, the Examiner's reconsideration of the application, and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 50-2961.

Respectfully submitted,

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